

Section 450 - Swimming Pools

450.01 Definitions. For the purpose of this Section, the following terms, phrases, words, and their derivations shall have the meanings given.

Backwash Piping. The piping which extends from the backwash outlet of a filter to its terminus at the point of disposal.

Filter. A material or apparatus by which water is clarified.

Inlet. The fitting or opening through which filtered water enters the pool.

Lifeline Anchors. The rings at transition point of the pool.

Main Outlet. The outlet at the deep portion of the pool through which the main flow of water leaves the pool when being drained or being recirculated.

Main Suction. The line connecting the main outlet to the pump suction.

Pool Deck. The finished area around the pool.

Pool Depth. The distance between the floor of the pool and the maximum operating level when the pool is in use.

Pool Floor. That portion of the pool that is horizontal or inclined less than 45 degrees to the vertical from the horizontal.

Pool Wall. That portion of the pool that is vertical or inclined more than 45 degrees to the vertical from the horizontal.

Recirculating Piping. The piping through which the water circulates from the pool to the filter and return to the pool.

Recirculation Skimmer. A device connected with pump suction used to skim the pool over a self-adjusting weir and return the water to the pool through the filter.

Residential Special Purpose Pool. Any basin for holding water which is designed for human use, 100 square feet or less in water surface area with a water depth greater than 24 inches at any point and which is accessory to a single family residence. This definition includes, but is not limited to treatment pools, therapeutic pools, whirlpools, spa pools, hot tubs and wading pools. This definition does not include temporary above ground swimming pools.

Residential Swimming Pool. Any constructed pool which is used, or intended to be used, as a swimming pool in connection with a single family residence, and available only to the occupants of the residence and private guests.

Return Piping. The piping which carries the filtered water from the filter to the pool.

Swimming Pool. Any basin for holding water, designed for human use, with a water depth greater than 24 inches. Swimming pools include residential swimming pools, residential special purpose pools and temporary above ground swimming pools.

Temporary Above Ground Swimming Pool. A swimming pool which is inflated or assembled above ground or on the ground and is intended by design to be seasonal in nature and available only to the occupants of a residence and their guests.

Transition Point. The point between the shallow and deep area of the pool.

Underwater Seats, Benches and Swimouts. An underwater seat, bench or swimout located at the perimeter of a pool no greater than 20 inches below the waterline and a horizontal depth of 12 inches or more.

Vacuum Fitting. The fitting in the wall of the pool which is used as a convenient outlet for connecting the underwater suction cleaning equipment.

Vacuum Piping. The piping which connects the vacuum fitting to the pump suction.

Width and Length Determination. The width and length of the pool shall be determined by actual water dimensions.

450.02 Construction Permit Approval. No person shall commence any work on the construction of a swimming pool, or any alteration, addition, remodeling or other improvement, or on any repair to a swimming pool, without first obtaining a permit from the Building Official. The applicant for a permit shall submit for approval by the Sanitarian three sets of identical plans and specifications and pertinent explanatory data relative to design, operation and maintenance insofar as health and safety features are concerned in accordance with the standards prescribed by this Section. Approval by the Sanitarian shall not pertain to design for structural stability. The Building Official shall not issue the permit until the plans and specifications have been approved by the Sanitarian.

450.03 Plans to be Submitted. Plans, specifications and pertinent explanatory data required by Subsection 450.02 shall comply with the provisions of this Section and shall include, but not be limited to, the following, as well as such other data as may be reasonably requested by the Sanitarian and the Building Official:

A. The general layout of the entire building lot on which the pool is to be located, distances of the pool from the lot lines, water supply systems, buried sewers and sewage disposal systems, utilities (electric, gas, telephone, etc.) or other sources of contamination within 50 feet of the pool. The plans shall be drawn to a scale of not less than one-fourth inch equals one foot and shall indicate all dimensions, including the effective length, depth, and width of the pool deck and similar items.

- B. Cross-section views of the pool.
- C. Cross-section view of scum gutters and skimmers.
- D. Diagrams showing all pipes, lines, vacuum lines, waste and discharge lines, circulation and other piping and listing material specifications and size.
- E. Pool equipment layout, showing location of filters, pumps, chlorinators, chemical feeds, flow meter gauges, sight glass, strainers, hair and lint interceptors, and the dimensions of the filter room, its location, floor drain, sumps and other pertinent information.
- F. Liquid capacity of the pool.
- G. Kind, number and size of filters, including the square footage of the filter area in each unit.
- H. Rated capacity of the filter in gallons per minute.
- I. Description of chemical feeds for soda ash and alum, if used.
- J. Type, kind and description of chlorinator to be installed.
- K. Type and range of testing equipment, including chlorine.
- L. Source of water supply.

450.04 Construction in Accordance with Approved Plans; Deviation. All swimming pools, appurtenances, water supply and drainage systems, and other features shall be constructed in conformity with the approved plans. For any deviation from such plans, a supplementary plan covering that portion of the work involved shall be filed for approval and shall conform to the provisions of this Section.

450.05 Permit Fee. The fee for a permit required by Subsection 450.02 shall be in the same amount as the fee for a building permit as set forth in Section 185 of this Code.

450.06 Construction. The design and construction, as well as all equipment and materials, shall comply with the following requirements:

Subd. 1 **Structural Design.** The pool structure shall be engineered and designed to withstand the expected forces to which it will be subjected. All non-masonry constructed walls shall be installed in accordance with the manufacturer's specifications.

Subd. 2 **Wall Design.** The top elevation of the pool walls shall not exceed by more than eight inches the highest ground elevation abutting the pool walls at any point. In determining such highest ground elevation, no elevation increases shall be considered that are due to fill placed or grading done in violation of this Subsection. The walls shall be

vertical to a depth of three feet from the water level. No right angle projection shall be permitted with exception of steps at the shallow end.

Subd. 3 **Floor Slope.** The slope of the floor on the shallow side of the transition point shall not exceed one foot vertical to ten feet horizontal (1:10). The transition point between shallow and deep water shall occur in a water depth of at least five feet, provided that this may be four and one-half feet if a safety line is erected at this point. Where the water is five feet or more in depth, the maximum slope shall not exceed one foot vertically in each three feet horizontally (1:3), provided that the floor slope from the point of maximum depth to the deep end wall may be one foot vertically in each one foot horizontally (1:1).

Subd. 4 **Overflow and Surface Drainage.** The pool and surrounding area shall be constructed and arranged in such a manner that no splash or overflow water shall return to the pool. No surface or roof drainage shall be permitted to enter the pool.

Subd. 5 **Finish and Cove.** Pool floor and walls shall have a cleanable, white or similar light-colored and impermeable surface. The pool floor shall be skid resistant. There shall be a minimum cove or rounded corner of one inch radius or more of the pool floor and wall, or such other interior construction. Where the water depth is less than five feet, the maximum radius or such cove shall be 12 inches.

Subd. 6 **Handholds.** Handholds shall be provided and consist of a bull-nosed coping not over two and one-half inches thick for the outer two inches or an equivalent approved handhold. The handhold shall not be more than nine inches above the normal water line and shall extend around the entire periphery of the pool.

Subd. 7. **Pool Deck.** Unobstructed deck areas not less than 48 inches wide shall be provided to extend entirely around each swimming pool. No deck may be provided for that side of a swimming pool forming a common wall with a residential special purpose pool, where the water depth of both the swimming pool and special purpose pool are less than 54 inches, and where the deck extends around all of those sides of the special purpose pool not sharing a common wall with the swimming pool. The deck shall be constructed above, but not more than nine inches above, the normal water line. The deck area shall be constructed of impervious material, and the surface shall be smooth and easily cleaned and of non-slip construction. The deck shall have a pitch of at least one-fourth inch to the foot, designed so as to prevent back drainage into the pool. If deck drains are provided, drain pipe lines shall be at least four times the cross-sectional area of the drain pipe. The deck drain system shall have indirect connections to the sanitary sewer. The deck drains shall not be connected to the recirculation systems piping. Special features such as waterfalls, a vanishing edge, or other decorative features may occupy a maximum of fifteen feet of deck around a swimming pool. Where the maximum depth of the swimming pool does not exceed 54 inches of water, one side of the swimming pool deck may be obstructed by special features.

Except, a deck is not needed around the perimeter of a special purpose pool where the special purpose pool is not located within four feet of a residential swimming pool.

- A. The pool is accessible from at least one side by a deck.
- B. The deck is no less than four feet wide as measured perpendicular to the pool side and no less than eight feet long as measured parallel with the pool side.
- C. The special purpose pool is not located within four feet of a residential swimming pool.
- D. The deck elevation is no lower than the elevation at the base of the special purpose pool or no more than 9 inches above the normal water line of the special purpose pool.”

Subd. 8. **Entry/Exit.** Two or more means of entry/exit shall be provided for all residential swimming pools. At least one entry/exit shall be located on the side of the pool at the deep end and one at the shallow end. The entries/exits shall consist of one or a combination of the following: steps, stairs, ladders, step holes, underwater seats, benches and swimouts. Step holes and ladders shall have a handrail on both sides. Underwater seats, benches and swimouts shall be visually set apart. If the pool is designed for use with diving equipment, the underwater seats, benches and swimouts shall be located outside of the required minimum diving water envelope as set forth in American National Standard for Residential Inground Swimming Pools (ANSI/NSPI – 5 2003) a copy of which is on file with the City Clerk. Two means of entry/exit shall be provided at the deep end where the width of the pool exceeds 30 feet.

Subd. 9 **Diving Area.** Minimum depths and area shall be as follows:

	Deck <u>Level Board</u>	Intermediate <u>Board</u>	One Meter <u>Board</u>
Maximum distance above water	18 inches	30 inches	39.37 inches
Minimum water depth five feet from tip of diving board	8 feet	8 feet	8.5 feet
Distance of deep point from diving well	10 feet	11 feet	12 feet
Distance from deep point to transition point	10 feet	11 feet	12 feet
Minimum diving board overhang	2.5 feet	2.5 feet	3 feet
Minimum distance from side wall to center of board	7 feet	7.5 feet	8 feet

At least 13 feet of free and unobstructed headroom shall be provided above diving boards. One depth marking shall be provided in the deck or the wall of the pool above the high water line indicating the greatest depth in feet. Diving structures shall be securely anchored.

Subd. 10 **Minimum Depth.** The minimum depth for all pools shall be three feet except for special purpose pools.

Subd 11. **Above Ground Swimming Pools; Fill.** Except for residential special purpose pools and temporary above ground swimming pools allowed by Subsection 450.07, swimming pools that are constructed or erected above ground or are designed to be constructed on the ground or above the ground are and shall be prohibited. No fill shall be placed or grading done on a property to raise the ground elevation for the purpose of raising the top elevation of the pool walls.

450.07 Temporary Above Ground Swimming Pools. Temporary above ground swimming pools are permitted subject to the following restrictions:

A. Temporary above ground swimming pools shall be removed and stored indoors between October 15 and April 15.

B. Temporary above ground swimming pools shall not have a water surface area in excess of 255 square feet and shall not be capable of having a water depth greater than 48 inches.

C. Drainage from a temporary above ground swimming pool shall be directed to the sanitary sewer or onto the property where such a pool is located in a manner which prevents runoff onto adjoining properties. Drainage onto a public street or storm sewer system is prohibited.

D. Diving boards appurtenant to temporary above ground swimming pools are prohibited.

E. Temporary above ground swimming pools shall be equipped with a ring buoy with not less than 15 feet of line attached or a pole or shepherds crook not less than 10 feet in length.

F. Temporary above ground swimming pools are exempt from the requirements of the following Subsections: 450.02 Construction Permit Approval , 450.03 Plans to be Submitted, 450.04 Construction in Accordance with Approved Plans; Deviation, 450.05 Permit Fee, 450.06 Construction except Subd 11 thereof, 450.08 Recirculation System, 450.09 Recirculation Pump, 450.10 Pool Piping, 450.11 Recirculating Skimming Device, 450.12 Inlets, 450.13 Outlets, 450.16 Test, 450.19 Safety Rope and Anchors, 450.26 Safety Precautions, and 450.28 Public or Semi-Public Swimming pool and Special Purpose Pool.

450.08 Recirculation System. A recirculation system consisting of pumps, piping, filters, skimmers, valves, and disinfection equipment shall be provided which will clarify and disinfect

the swimming pool water volume in 12 hours or less. The recirculation system components shall comply with NSF International 50, 1985.

450.09 Recirculation Pump. The recirculating pump shall have sufficient capacity to provide the rated flows of the filter system, without exceeding the head loss at which the pump will deliver such flows. The pump motor shall not be operated at an overload which exceeds the service factor. The pool pump shall be equipped on the inlet side with an approved hair and lint interceptor. The basket of the interceptor shall be non-corrosive and have openings not larger than one-fourth inch in diameter.

450.10 Pool Piping. The pool piping shall be sized to permit the rated flows for filtering and cleaning without exceeding the maximum head at which the pump will provide such flows. In general, the water velocity in the pool piping should not exceed more than six feet per second. Where velocity is to exceed six feet per second, summary calculations shall be provided to show that rated flows are possible with the pump and piping provided. The recirculating piping and fittings shall meet the following requirements:

Subd. 1 **Vacuum Fitting Location.** Where vacuum fittings are provided, they shall be located in accessible positions below the water line.

Subd. 2 **Pool Recirculation Piping.** Pool recirculation piping, passing through the pool structure, shall be copper, brass, or approved equal tubing with a minimum wall thickness of type "L".

Subd. 3 **Pool Piping System.** The pool piping system shall be constructed of materials prescribed in the Minnesota State Plumbing Code.

Subd. 4 **Inspection of Pool Piping.** Except for the pool water supply line, all pool piping must be installed by the pool contractor and must be inspected by the Building Official prior to covering the system.

450.11 Recirculating Skimming Device. Recirculating skimming devices shall be provided to skim the surface of the pool, with one unit installed to serve each pool, and such additional units as may be required, to provide a minimum of one for each 600 square feet of pool water surface or fraction thereof. Recirculating skimmers and pool inlets shall be located so that the pool inlets assist the skimming action to adequately remove the film on the pool water surface. When pools are irregularly or specially shaped, skimming devices shall be located in each offset.

450.12 Inlets. Adjustable inlets shall be located to produce uniform circulation of water throughout the pool without the existence of dead spots.

Subd. 1 **Minimum Number.** A minimum of two inlets shall be required for each pool, with an additional inlet for each additional 40 lineal feet or fraction thereof of pool periphery over 120 lineal feet. Where automatic skimmers and skimmer-filter units are used, inlets shall be installed so as to direct the flow of water in a horizontal plane to the skimming device inlet. The minimum discharge depth of pool inlets shall be ten inches below the pool operation level. When pools are irregularly or specially shaped, additional inlets shall be installed in each offset.

Subd. 2 **Make-up Water.** Suitable facilities for adding make-up water shall be provided. There shall be no physical connection between the water supply line and the pool system. If the make-up water is added directly to the pool, the fill spout shall be at least six inches above the upper rim of the pool. If the make-up water line discharges to a surge or balancing tank, the point of discharge shall be at least six inches above the rim of the tank. If a hose connection from a sill cock or other plumbing fixture is to be used for supplying make-up water, then an approved vacuum breaker shall be installed between the sill cock or control valve at the fixture and the hose connection. Any sill cock used for this service shall be located under a diving board or installed in a manner approved by the Sanitarian so as to remove any hazard.

Subd. 3 **Conformance with Minnesota State Plumbing Code.** The systems supplying re-circulated water and make-up water to the pool shall be constructed in conformance with the Minnesota State Plumbing Code.

450.13 Outlets.

Subd. 1 **Main Outlets.** Main outlets, for purposes of recirculation and emptying the pool, shall be so located as to provide at least one outlet at the deepest point in the pool if the pool width does not exceed 20 feet. If the pool width is more than 20 feet, multiple outlets shall be provided and spaced not more than 20 feet apart, nor more than ten feet from walls. All main outlets shall be equipped with gratings having an area of openings not less than four times the cross-sectional area of the outlet pipe. The gratings shall be designed so that they cannot be readily removed by bathers and will not injure fingers of bathers.

Subd. 2 **Drainage.** If the pool cannot be drained by gravity, it shall be equipped with valves and pumps for completely emptying the pool. The discharge of the pool water to the sanitary sewer, or other suitable disposal unit acceptable to the Sanitarian, shall be at a rate not to exceed 250 gallons per minute. No direct connection shall be made to the sanitary sewer. The outlet from the pool recirculation system shall terminate at least six inches above the receptacle connected to the sewer. The drainage system shall be constructed under the supervision of a licensed plumber and in conformance with the provisions of the Minnesota State Plumbing Code. Water drained from the pool shall not be discharged to the sanitary sewer system during periods of rainstorms.

450.14 Heater. Gas-fired swimming pool heaters and swimming pool boilers shall bear the American Gas Association seal of approval. Oil burning equipment shall bear the Underwriters Laboratory seal of approval.

450.15 Water Supply. Water supplies serving all swimming pools shall be of a safe and sanitary quality or otherwise acceptable to the Sanitarian. The installation of the pool water supply piping and connection to the source of supply shall be under the supervision of a licensed plumber.

450.16 Test. All pool piping and the installation and construction of the pool piping system shall be in accordance with the approved plans. The entire pool piping system shall be tested with an air test of 50 PSI and proved tight before covering or concealing.

450.17 Chemical Treatment and Pool Water Quality. Gaseous chlorinating systems shall not be used as a disinfecting method for residential swimming pools. Residential swimming pools, public and semi-public pools shall meet the following standards:

Subd. 1 **Free Chlorine.** The free chlorine content shall be maintained between five-tenths (0.5) and three (3.0) parts per million.

Subd. 2 **Alkalinity.** The pH level shall be maintained at between 7.2 and 7.8.

Subd. 3 **Bacteriological Quality.** A sample of swimming pool water shall be considered satisfactory when the total bacterial count at 35 degrees centigrade does not exceed 200 colonies per milliliter and no organisms of the E. Coli group are present in a 50 milliliter portion as determined by the membrane filter method. Procedures and interpretations relating to bacteriological quality shall be done in accordance with the Standard Methods for the Examination of Water and Waste Water, 13th Edition. (APHA).

450.18 Indicator Kit. An indicator kit capable of measuring free chlorine residuals in swimming pool water accurate within one-tenth part per million shall be provided.

450.19 Safety Rope and Anchors. A safety rope and anchors shall be provided at the water line when the designed pool operating water level is four and one-half feet or less.

450.20 Electrical Requirements.

Subd. 1 **Code Conformance.** All electrical installations provided for, installed and used in conjunction with a swimming pool shall conform with the provisions of Section 410 of this Code.

Subd. 2 **Electrical Conductors.** No current carrying electrical conductors shall cross a swimming pool, either overhead or underground or within ten feet of a swimming pool except for pool lighting or pool accessories.

Subd. 3 **Grounding.** All metal fences, enclosures or railings near or adjacent to a swimming pool which might become electrically alive as a result of contact with broken overhead conductors, or from any other cause, shall be effectively grounded.

450.21 Operation and Maintenance. No swimming pool shall be used, kept, maintained or operated in the City, if such use, keeping, maintaining or operating shall be the cause of any nuisance or shall be dangerous to life or detrimental to health.

450.22 Inspection. The Sanitarian shall have authority to inspect any residential swimming pool at any reasonable time during construction and thereafter to determine whether or not the provisions of this Section regarding health, sanitation, operation and safety are being complied

with. The Building Official shall have authority to enter upon any premises to inspect work done and installations made under any permit issued pursuant to this Section.

450.23 Shielding Light. Lights used to illuminate any swimming pool shall be so arranged and shielded as to reflect light away from adjoining premises.

450.24 Location. No portion of a swimming pool, except a residential special purpose pool, or any appurtenance shall be located within 10 feet of any side or rear lot line, nor in the required front yard as provided in Section 850 of this Code. No portion of a residential special purpose pool or any appurtenance shall be located within five feet of any side or rear lot line, nor in the required front yard as provided in Section 850 of this Code.

450.25 Fence. All swimming pools shall be completely enclosed by a non-climbing type fence. All fence openings or points of entry into the pool area enclosure shall be equipped with gates. The fence and gates shall be at least four feet in height and shall be constructed of number eleven gauge woven wire mesh corrosion-resistant material, or of other materials approved by the Building Official. All gates shall be equipped with self-closing and self-latching devices placed at the top of the gate or otherwise inaccessible to small children. All fence posts shall be decay or corrosion-resistant and shall be set in concrete bases, or other suitable protection. The openings between the bottom of the fence and the ground or other surface and the openings between the vertical pickets shall not be more than four inches. Except a special purpose pool need not meet the fence requirement provided:

A. The special purpose pool is equipped with a safety cover listed in accordance with American Society for Testing and Materials (ASTM) Standard F 1346, "Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs.

B. The safety cover is secured and locked in place at all times the special purpose pool is not occupied.

450.26 Safety Precautions.

Subd. 1 **Ring Buoys.** Every residential swimming pool shall be equipped with one or more throwing buoys not more than 15 inches in diameter and having 60 feet of 3/16 inch Manila line attached, and one or more light but strong poles with blunted ends, not less than 12 feet in length, for making reach assist or rescue.

Subd. 2 **Diving Board Height.** The height of diving boards above the pool water level shall be in accordance with Subsection 450.06, Subd. 9. The Sanitarian may authorize greater diving board heights when it is shown that such increased height will provide an equally safe diving board height-maximum pool depth ratio.

450.27 Other Design and Equipment. Any swimming pool, the design and equipment of which incorporates features other than those set forth in this Section, shall be subject to review and approval by the Sanitarian in accordance with acceptable standards and in conformance with current public health and safety practices.

450.28 Public Pool, Special Purpose Pool and Spa Pool.

Subd. 1 **Construction and Operation.** Any public or semi-public swimming pool or special purpose pool shall be constructed and operated in accordance with Minnesota Statutes Section 144.1222 and the public and semi-public provisions contained in the Minnesota Department of Health Rules 4717.0150 through 4717.3975. Plans to construct a new swimming pool or remodel an existing swimming pool must be submitted to the Minnesota Department of Health for formal plan review and approval prior to any work being done. No person shall construct, alter, remodel, improve or repair a swimming pool without first obtaining required permits from the Building Official.

Subd. 2 **Rules on File.** Three copies of said rules, each marked "Official Copy", is on file in the office of the Clerk and shall remain on file for use and examination by the public.

Subd. 3 **Official Investigation.** The Sanitarian and Building Official may enter upon any premises for the purpose of conducting preconstruction surveys, intermediate construction investigations and operational investigations. Such entries may be made at such times as may be deemed necessary to determine that the facilities are constructed in accordance with approved plans, and maintained and operated in accordance with the requirements of the rules described in this Subsection.

Subd. 4 **Valid License.** No person shall operate or maintain a public or semi-public swimming pool or public or semi public special purpose pool without having first obtained a valid license issued by the City. The provisions of Section 160 of this Code shall apply to all licenses required by this Subsection and to the holders of such licenses.

A. In addition to the applicant's name and address, the applicant for a license shall furnish the address of the premises where the pool is situated or is to be situated.

B. The fee for a license required by this Subsection shall be in the amount set forth in Section 185 of this Code.

C. Licenses issued pursuant to this Section shall expire on March 31 of each calendar year.

D. It shall be the duty of the Sanitarian to enforce the provisions of this Subsection.

History: Ord 434 codified 1970; amended by Ord 434-A1 10-27-71, Ord 434-A2 2-7-74, Ord 434-A3 2-16-77, Ord 434-A4 6-27-79, Ord 434-A5 5-14-80, Ord 434-A6 6-17-81, Ord 434-A7 3-30-83, Ord 434-A8 6-13-84, Ord 434A-9 8-14-85, Ord 434-A10 5-13-87; Ord 2000-5 5-16-00; Ord 2004-1 3-16-04; Ord. 2006-6; 12-5-06; Ord 2010-10, 07-06-10

Cross Reference: Sections 160, 185, 410, 850